

DRAFT

Chapter 2.1.1 / 3.1.3 SYSTEMS PLANNING, RESEARCH, DEVELOPMENT & ENGINEERING (SPRD&E) Revision: May 1999

1. THIS CHAPTER IS ABOUT:

A. This chapter describes the implementation of SPRD&E surveillance as an iterative, risk-based approach to examine a supplier's efforts relative to systems planning, research, development, and engineering. SPRD&E includes, but is not limited to: examination of the supplier's engineering systems, processes, policies, procedures, practices, activities and products. The surveillance focus is on supplier engineering/engineering management systems, which ensure compliance with contract performance requirements, and on supplier design decisions which impact total ownership costs. DCMC's involvement provides the customer with early notification of potential problems and supplier decisions, that could affect technical performance, schedule, or total ownership cost, throughout the acquisition cycle.

B. Typical outputs of this process are:

- 1) Risk Handling Plans (Supplier Risk Management Chapter) (hotlink needed)
- 2) Delegations to other DCMC field offices
- 3) Status reports
- 4) Process evaluations
- 5) Corrective Action Requests (CAR)

2. WE DO THIS BECAUSE:

A. The purpose of DCMC surveillance is two-fold: provide oversight by evaluating supplier efforts in fulfilling contractual responsibilities; and provide insight to the buying activity relative to supplier progress in meeting technical performance requirements. In addition, DCMC SPRD&E surveillance will evaluate and improve the effectiveness and efficiencies of a supplier's system and design engineering process, and through our influence, affect process improvements. Surveillance results will provide essential data to support customer design and system acquisition throughout the acquisition cycle. Providing timely inputs to our customers can preclude potential supplier problems in design and development, or allow customers and suppliers to take early remedial action.

B. The Top Metric for this chapter is the **RIGHT ITEM**. The Right Item produces contractually conforming items. The Feeder Metrics for this process are Technical Performance Measures (to be ready by FY01) and Engineering Change Proposals (ECPs) and Waivers/Deviations per 1000 contracts. (Metrics Guidebook) (hotlink needed)

3. DCMC POLICY:

It is DCMC's policy to assess the adequacy of the supplier's plan, and performance-to-plan, in meeting contractual design, development, cost, schedule and technical requirements. **The SPRD&E individual or designated technical specialist/engineer shall evaluate the effectiveness and efficiency of the supplier's technical management systems/processes, identify potential problem areas and recommend Continuous Improvement Opportunities (CIOs) or issue Corrective Action Requests (CARs), as necessary. (PROCAS) (hotlink needed)**

4. THE PROCESS AND WHO IS RESPONSIBLE:

A. Process Inputs:

- 1) Contracts and modifications
- 2) Memorandum of Agreement, or Letter of Delegation, if applicable
- 3) Federal Acquisition Regulation/Defense Acquisition Regulation Supplement
- 4) Risk Assessment and Management Program (when available)
- 5) Contractor submitted deliverables (e.g. program plans, drawings, specifications, and technical manuals)
- 6) Contractor operating policies, procedures, standards and data
- 7) Nondeliverable contractor engineering and design management documents (e.g., minutes, records of informal reviews and audits, informal test results, contractor's trouble reporting system, corrective action system documentation, etc.)
- 8) Information obtained by attending formal /informal design reviews, audits, tests, and technical meetings
- 9) Acceptance Test Procedures, Plans, and Results (including First Article Qualification)
- 10) Customer feed back

B. Sub-Processes:

- 1) Identify contract requirements, deficiencies and /or need for a Memorandum of Agreement (MOA) or Letter of Delegation (LOD). LODs may be necessary for CAOs at subcontractors.
- 2) Assist Program Integrator/AC0 in developing an MOA or LOD, if necessary.
- 3) Develop and implement a risk handling plan (hotlink needed).
- 4) Coordinate efforts with the customer.
- 5) Issue CARs or CIOs and monitor results.

C. Process Mechanisms:

- 1) Memorandum of Agreement (MOA) or LOD.
- 2) PROCAS teaming efforts, meetings.
- 3) Procedures, policies, results of past evaluations.
- 4) DD Form 1716, Contract Data Package Deficiency Report.
- 5) Early CAS activities.

D. Process Controls:

- 1) FAR 42.302 Contract Administration Functions, paragraph's (40), (41), (43) and (45), or applicable DFAR paragraphs.
- 2) FAR 52.246-2, Inspection of Supplies -- Fixed Price
- 3) FAR 52.246-7, FAR 52.246-8, and FAR 52.246-9, Inspection of Research and Development
- 4) DoD 5000.2-R Mandatory Procedures for Major Defense Acquisition System Programs (MAISDAPs) and Major Automated Information System (MAIS) Acquisition Programs.

E. Process flowchart: Refer to Process Flowchart Diagram

F. Who does what and when they do it:

1) Control of the SPRD&E function:

SPRD&E duties, for each supplier with engineering requirements, shall be under the control of an individual, as the SPRD&E specialist, certified at Level II (or higher) in the SPRD&E career field. If other engineers or technical specialists are delegated the responsibilities in this chapter, the SPRD&E specialist, in conjunction with the respective supervisor or team leader, shall determine their qualification and suitability. This shall depend on the individual's knowledge and experience, personnel constraints, program complexity/importance, risk, etc. If delegated, the SPRD&E focal point shall retain the overall responsibility for SPRD&E supplier surveillance and meeting customer requirements.

2) The SPRD&E surveillance process:

a. The surveillance process to be used for SPRD&E is found in the Supplier Risk Management chapter (Supplier Risk Management Chapter) (hotlink needed). This chapter describes how to perform surveillance using a risk management methodology of risk planning, assessment, handling, monitoring, and documentation.

b. For planning purposes, the SPRD&E specialist or designated technical specialist or engineer shall review the contract, contract modifications, Memorandum of Agreement (MOA), or Letter of Delegation for engineering requirements. The specialist shall also identify the key processes that support completion of these engineering contract requirements. Key processes are those which, if not properly controlled, can adversely affect contract performance, cost, or schedule. Ensure the CAO is on distribution for relevant contractor data item submittals, and that a process for technical review of contracts, data items, etc, has been established. (Chapter 6.1 .1, Contract Receipt, Review and Postaward) (hotlink needed). Engineering contractual requirements include, but are not limited to, the following:

Systems Engineering
Configuration Management
Systems Safety
Engineering Management
Human Factors Engineering
Modeling and Simulation

Test and Evaluation
Integrated Logistics
Reliability and Maintainability
Design Engineering
Research and Development
Open Systems

c. The SPRD&E specialist shall perform a risk assessment and assign a risk rating for each engineering system or key process supporting an engineering requirement. One element of risk assessment is risk analysis. Risk analysis considers the probability and consequence of failure to meet requirements. The outcome of the risk analysis is a risk rating of high, moderate, or low, for each engineering system or key process being considered. (See paragraph e. (1)). This should then result in a prioritized risk list.

d. The SPRD&E specialist shall develop/implement risk handling plans that address system and key process risks in meeting contract/program technical requirements (risk matrices) (hotlink needed). Delegations shall be provided, as necessary, to the CAOs responsible for subcontractor and/or supplier surveillance. Risk handling plans and delegations shall be coordinated with the Program Integrator, Team Leader, other functional specialists, and Program Management Office (PMO), as necessary. (See paragraph e. (1)).

(1) The risk handling plan shall include the intensity, schedule, and frequency of the risk handling methods chosen. The risk handling methods, and their intensity, schedule, and frequency, will depend on the assigned risk levels. Various risk handling methods may be used, such as evaluations, audits, process proofing, data reviews, data analysis, etc. Areas to be reviewed under risk handling may include status reports, failure analyses, earned value reports, corrective actions, design studies, technical manuals, test procedures, engineering drawings, specifications, and supplier policies, procedures, and practices. Depending on the contract requirements and what is called out in the MOA, risk handling may be needed at both the process level, for program support, and the system level.

e. The SPRD&E specialist shall monitor the effectiveness of risk handling plans, by tracking and evaluating the supplier performance related to the systems and key processes addressed in the plans. The SPRD&E specialist shall use technical performance measures (TPMs) (link needed) to monitor risk and track supplier progress in meeting those actual or derived requirements, that are key to ensuring system performance and program cost and schedule requirements are met. The specialist shall use supplier TPMs where available. Otherwise, where applicable, use supplier data to construct TPMs that will provide insight into supplier progress in key process areas.

(1) As programs progress and processes change, risk assessments and risk handling plans shall be reviewed and updated, and the risk handling methods shall vary, based on the results of the risk monitoring efforts and any changes to risk ratings. Adverse performance measures shall result in corrective action measures. (PROCAS) (hotlink needed)

(2) The Earned Value Management System (EVMS) control accounts (where EVMS is required or the supplier uses EVMS) reflect contract and program requirements that have been flowed down from, and explained in, the Work Breakdown Structure. Negative variances in control accounts show cost overruns or schedule slippages that can adversely impact program progress or major end item performance. **The specialist shall be aware of the status of those control accounts that reflect the performance of key processes that ensure important technical functions, and system performance parameters, are met. TPMs shall be used as a predictive tool to help preclude negative variances in these control accounts.**

f. The SPRD&E specialist shall record and maintain documentation on risk assessments, handling, and monitoring results and updates.

3) Acquisition and business reform initiatives impacting SPRD&E:

a. Many current acquisition and business reform initiatives affect, and are affected by, the SPRD&E engineering functions. This will continue to be true in the future, as these initiatives change and new ones evolve. One of the most important of these initiatives is Total Ownership Costs (TOC) (hotlink needed). TOC is directly affected by the basic systems engineering function, of performing trade-off analyses to provide the best performance, at the target cost, in a timely manner. TOC is also affected by how well acquisition logistics, reliability, maintainability, and availability requirements are met. In addition, Cost As an Independent Variable (CAIV) (hotlink needed) has refocused Design-to-Cost to include the total program life cycle and to take a program level view of meeting mission needs at an affordable cost. **The specialist shall ensure TOC and CAIV concepts have been considered, when evaluating contractor design trade-offs.**

b. In the design area, there has been much emphasis on modernizing currently fielded systems, and ensuring current designs can easily accept new technology. This is accomplished through the use of Open Systems design (hotlink needed) and initiatives like Modernization Through Spares (MTS) (hotlink needed). Open Systems design is a modular approach that uses a standard-based architecture so hardware and software interfaces have a common reference. MTS inserts commercial products and new technology by taking advantage of the standard interfaces. **The specialist shall be aware of those acquisition and business reform initiatives that can impact engineering design/development and program performance, cost, and schedule. A listing of current initiatives is provided below.**

Table 1.

Acquisition Reform and Business Initiatives (AR&BI)	
Performance-Based Contracting Lean Initiatives Integrated Digital Environment Modernization Through Spares Open Systems Cost As an Independent Variable Total Ownership Cost Simulation Based Acquisition	Systems Eng Capability Models Commercial Contracting Early CAS Contractor Self Oversight Civil Military Integration Contractor Logistics Support IPT Pricing Parametric Costing
There is a list of typical engineering duties, associated with each of the above areas, that you can find at the following link (AR&BI engineering duties)(link needed)	

c. Information associated with these and other initiatives constitute best practices, which shall be considered when determining if CIOs exist. (See paragraph 3. DCMC POLICY).

4) If a contractual standard, specification, or drawing requires the use of environmentally damaging materials (e.g., ozone depleting substances) when less damaging alternatives exist, notify the Specification Preparing Authority or the PCO.

5. ADDITIONAL PROCESS INFORMATION:

- A. Defense Acquisition Deskbook
- B. Business Plan Task 1.2.1.1
- C. Process Improvement Network (PIN)
- D. One Book Chapter, PROCAS
- E. PBSM
- F. Guidebook
- G. IOA Guidelist

6. COMPETENCIES AND CERTIFICATIONS REQUIRED TO EXECUTE THIS PROCESS:

- A. DCMC Training Matrix
- B. **SPRD&E Level II (or higher) certification required for the person who is the focal point for this process. If so delegated, designated technical specialists/engineers must have DAWIA Level II certification in their respective career field and appropriate certifications.**
- C. Training Sources/Information: DCMC agreement with NCMA

7. PLAS CODES: 069 SPRD&E

PLAS Point of Count: Report to PMO/CAO Product Audit

8. POINTS OF CONTACT:

DCMC Headquarters:

Process Owner: Mr. Mike Ferraro, DCMC-OB (Engineering Group)

Phone: (703) 767-3352

E-Mail: mike_ferraro@hq.dla.mil

DCMDE:

Process Champion: Mr. Larry Cianciolo .

Phone: (617) 753-3597

E-Mail: bot5092@dcmdc.dla.mil

DCMDW:

Process Champion: Mr. Kevin Kaboli

Phone: (310) 900-6562

E-Mail: KKaboli@whq.dcmdw.dla.mil

DCMDI:

Process Champion: Mr. Robert Posthumus

Phone: (703) 767-2794

E-Mail: robert_posthumus@hq.dla.mil

2.1 .1 Process Flow Chart

[Return to text](#)

[One Book Home](#) | [Table of Contents](#) | [Policy Change Notices](#) | [Policy](#) | [Information Taskings](#) |
[Departmental Letters](#)

[DCMC One Book Reengineering and Navigation
Information](#)

Questions can be directed to [Mr. Richard Horne](#)

